

1 **ABSTRACT**

2 A system facilitates the design and implementation of large-scale
3 applications, such as Internet Services and Websites, for distributed computer
4 systems, such as server data centers, Internet data centers (IDCs), Web farms, and
5 the like. The system has a modeling system and a deployment system. The
6 modeling system permits developers to architect the hardware and software used
7 to implement the applications in an abstract manner. The modeling system defines
8 a set of components used to describe the functionality of an application. The
9 model components are arranged and interconnected to form a scale-independent
10 logical model of the application. Once a logical model is created, the deployment
11 system uses the logical model to automatically deploy various computer/software
12 resources to implement the application. The deployment system converts each of
13 the model components into one or more instances that correspond to physical
14 resources. As one example, the resources correspond to the computer nodes of a
15 distributed computer system that are loaded with specific types of software to
16 implement the function represented by the model components. The deployment
17 system initially installs the application on the computer nodes according to the
18 logical model. It then dynamically and automatically modifies the allocation of
19 computer nodes used to implement the application in an ongoing basis as the
20 operating parameters of the application change.